

## DATA REQUIREMENTS DESCRIPTION (DRD)

1. **DPD NO.:** XXX                      **ISSUE:** Draft
2. **DRD NO.:** **STD/AD**
3. **DATA TYPE:** 2/3
4. **DATE REVISED:**
5. **PAGE:** 1/4
6. **TITLE:** Functional and Physical Configuration Audit (FCA/PCA) Documentation
7. **DESCRIPTION/USE:** To support the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA). The FCA is an audit to verify performance of the CI/CSCI against approved configuration documentation. The PCA is an audit of the configuration documentation and quality control records to ensure the 'as-built' configuration complies with the 'as-designed' configuration defined in the documentation.
8. **OPR:** [Enter Agency organization with technical responsibility for the supported data]
9. **DM:** [Enter Agency organization acquiring the data for a specific program/project/activity]
10. **DISTRIBUTION:** See Attachment 2
11. **INITIAL SUBMISSION:** See Attachment 2
12. **SUBMISSION FREQUENCY:** Per configuration audit
13. **REMARKS:** NASA will document audit planning and provide it to the contractor prior to the audit.
14. **INTERRELATIONSHIP:**
15. **DATA PREPARATION INFORMATION:**
- 15.1 **SCOPE:** Functional and Physical Configuration Audit (FCA/PCA) Documentation contains the required documentation necessary to support the configuration audit for a configuration item (CI) and a computer software configuration item (CSCI).
- 15.2 **APPLICABLE DOCUMENTS:**  
SAE/EIA-649-2                      *Configuration Management Requirements for NASA Enterprises*
- 15.3 **CONTENTS:** Requirements specifications, verification planning documentation, and other required data for the Functional Configuration Audit (FCA) shall be that collected for the CI/CSCI that is to be formally accepted. The Physical Configuration Audit (PCA) verifies that the 'as-built' configuration reflects the required characteristics documented in the 'as-designed' configuration. Configuration and quality control records and other documents defining the 'as-built' or 'as-coded' configuration defined in the documentation shall be provided.

SAE/EIA-649-2 provides guidelines on documentation required for the FCA and PCA. See Attachment 1 for documentation required for the audits.

Additional documentation requirements to be provided are:

- a. Agenda - The agenda shall specify the date, time and place for the scheduled audit, specific review items, supporting documentation, and key participants. Submit approved copies at the review. See Attachment 2.
- b. Presentation Charts - Presentation charts shall be submitted at the start of the audit. They shall summarize the details contained in the data package and identify compliance with the contract requirements. See Attachment 2 for distribution and availability of data.

- c. Plan – A plan shall be submitted prior to initiating the audit, stating configuration items to be reviewed; data required to perform the review; how audit actions items are recorded and tracked; defining success criteria; and providing for formal approval of the audit. The plan shall also define extent of contractor and government participation in the review.

## DRD Continuation Sheet

**TITLE:** Functional and Physical Configuration Audit (FCA/PCA)

**DRD NO.:** **STD/AD**

Documentation

**DATA TYPE:** 3

**PAGE:** 2/4

---

15. **DATA PREPARATION INFORMATION (CONTINUED):**

- d. Audit Minutes Package - The official Audit Minutes Package (not to be confused with the daily audit minutes) shall contain a description of the audit with sufficient detail to enable the audit to be made a matter of record. The Audit Minutes Package shall include the presentation charts, a listing of Findings, audit action items identified (with actionee and suspense data), approved FCA/PCA certification sheets, any daily audit minutes, and any record of other findings, conclusions, and recommendations as applicable. See Attachment 2 for distribution and availability of data.
- e. Findings - showing audit action items identified (with actionees, suspense dates and closure status) shall be submitted. See Attachment 2 for distribution and availability of data.

15.4 **FORMAT:** Contractor format is acceptable.

15.5 **MAINTENANCE:** As required to correct errors and to maintain findings closure status.

## Configuration Audit Required Data

Documentation required for FCA (As Applicable)

- Requirement Specifications (including ICDs).
- Drawings and parts list.
- List of approved Drawing Engineering Orders (EOs).
- Verification Compliance Report (VCR) (provides traceability for all requirements to associated verification objectives/requirements and to evidence of compliance).
- Approved Change Requests (CRs) and Variance Requests (VRs) (i.e. deviations/waivers) incorporated and pending.
- An account of Change Requests (CRs) incorporated and tested as well as proposed.
- Specification and drawing tree.
- Materials Usage Agreement (MUAs).
- Material Identification Usage List (MIUL).
- Certification of Qualification(s) (COQ's).
- Qualification Test Deficiencies List
- Verification requirements and procedures.
- Software (CSCI) specific data:
  - o Software verification data.
  - o Records that reflect the changes made to design release configuration for the CSCI.
  - o Software Version Description Document (VDD).
  - o Findings of all internal CM and software (including FPGA devices that contains software that runs executable code) QA audits of the CSCI.
  - o List of FPGA devices that contain software that runs executable code.
- Critical Design Review (CDR) RIDs and dispositions.
- Hazard Reports (and HR open issues).
- Failure Mode Effects Analysis (and FMEA open issues).
- List of open issues for Internal or External Interfaces.
- Test plans and procedures.
- Test reports.
- ALERTS tracking log.

Documentation required for the PCA (As Applicable)

- Acceptance Data Package (ADP)
- Final version of all requirement specifications (including ICDs).
- Configuration Status Accounting (CSA) reports as requested at the audit.
- Software (CSCI) specific data:
  - o Final version of all software operating and support manuals.
  - o Final version of software Version Description Document (VDD).
  - o Software release and build records.
- All FCA findings (audit action items) for each CI/CSCI (i.e. official Audit Minutes Package).
- List of approved and outstanding CRs and VRs.
- All approved contract Directives.
- Copies of CRs and VRs as requested at the audit.
- Data defining 'as-designed' configuration:
  - o Drawing and specification tree.
  - o Product drawings and parts list as requested at the audit.
  - o Indentured Parts List (IPL).
  - o Lists of all outstanding EOs that have been incorporated into the CI (and are awaiting incorporation into information).
- Acceptance Test Procedures (ATPs) and associated ATP Report (test results).
- As run test procedures (when applicable, include any test discrepancy records).
- Identification of all changes made during test.
- Identification of any approved and required changes not completed.
- Copy of parts tags or verification closure for verification items verified by inspection method.
- Data defining 'as-built' configuration:
  - o As-Built Configuration List (ABCL).
  - o Manufacturing and inspection (build) records as requested at the audit.
- Discrepancy Reports (DR's).
- Summary and Status of Open Material Review Board (MRB) actions (including list of open MRB Actions).
- Proposed Material Inspection and Receiving Report, DD Form 250 (for transfer from external Supplier to NASA).
- Requisition and Invoice/Shipping Document, DD Form 1149 (for Govt. to Govt. transfer).
- Complete shortage list.

- ALERTS tracking log.

**NOTE:** This list may require some tailoring for a specific contract. Example would be the deletion of software requirements if no software was required per the contract.

## ATTACHMENT 2

Page 4/4

### FCA/PCA Documentation Distribution and Availability of Data

Document	Data Type	FCA Copies/Availability	PCA Copies/Availability
Agenda	2	One/15 days prior to audit, Approved copies at audit	One/15 days prior to audit, Approved copies at audit
Data Package	3	One/Two weeks prior to audit	One /Two weeks prior to audit
Presentation Charts	3	One for each attendee at audit	One for each attendee at audit
Audit Minutes Package	2	One at audit/copy to each attendee within two weeks	One at audit/one to each attendee within two weeks
Findings (generated at Reviews)	2	Provided as hard copy or electronically per the project specific Audit Plan.	Close out to be as specified in the project specific Audit Plan.

**NOTE:** This list may require some tailoring for a specific contract. Example would be the deletion of software requirements if no software was required per the contract.

## **NOTE to STD/CM-FCA/PCA**

### **Functional and Physical Configuration Audit (FCA/PCA) Documentation**

Sample Statement of Work words\*: (\*See SOW Tailoring Note on next page.)

Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA). FCA/PCA shall be conducted in accordance with the requirements specified in SAE/EIA-649-2. The data required to support the FCA and PCA shall be provided as defined in STD/CM-FCA/PCA.

The contractor shall provide the facilities and administrative support necessary for the audits. The requirements for the necessary support are defined in SAE/EIA-649-2 and as follows: (1) provide support for maintaining a system for recording, processing, tracking, and reporting the status of all findings (FCA/PCA Action Items) identified during the audit, corrective action and close out status; and (2) provide facilities and administrative support to the audit team(s).

### **SOW Tailoring Note**

Tailoring of SOW words to include contractor self-assessment FCA/PCA: (Although the Government normally conducts and approves the FCA/PCA, it may be beneficial to the Government to limit personnel involvement in the detailed reviews and delegate to the contractor additional responsibility for the conduct of the FCA/PCA on a project-by-project basis. It is incumbent upon the NASA Project Manager and the Project CM representative to assure that the project-specific additional responsibility is tailored into the SOW and STD/CM-FCA/PCA is tailored to reflect the additional documentation to be supplied.)

Application data: FCA/PCA audits certify that Configuration Items (CIs/CSCIs) meet criteria for establishing the *Product Baseline* as defined in SAE/EIA-649-2. The FCA/PCA may be included within the scope of the Systems Acceptance Review so long as specific FCA/PCA certifications are obtained.

**\*\*\*Sample complete CM SOW \*\*\***

## **NOTE:**

**The applicability/tailoring instructions on this DRD are not a part of the DRD and should not be included in a DPD.**